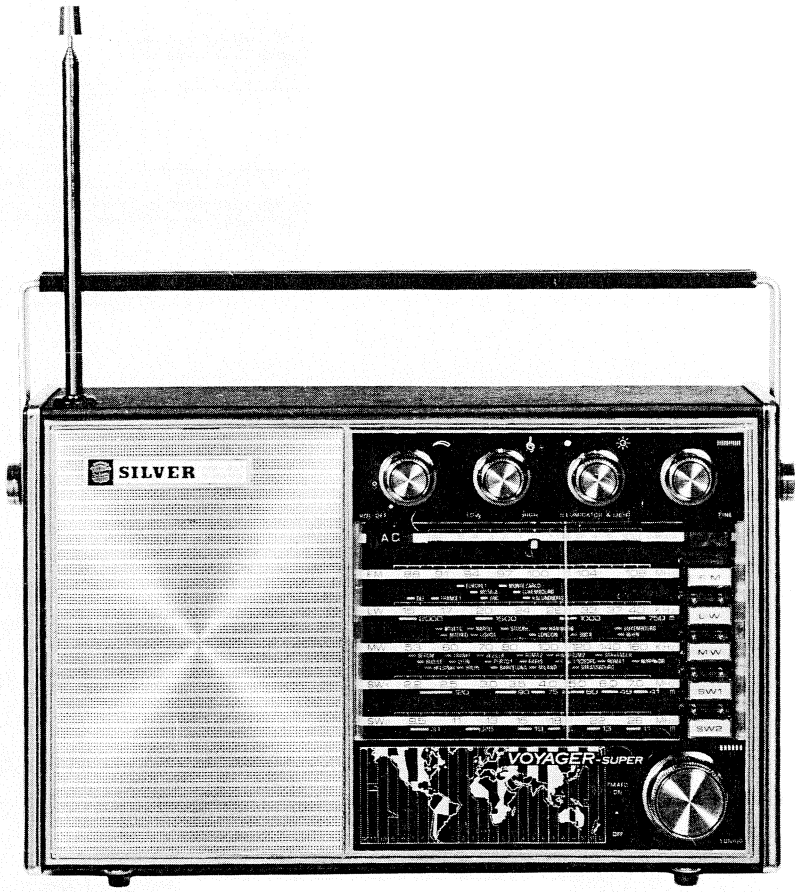
SERVICE MANUAL
SILVER
MODEL 14F912L



SPECIFICATION

Semiconductor ..... 14 transistors (10 Si, 4 Ge), 8 diodes.

Tuning Range

FM	87.5	~	108 MHz
LW	150	~	400 KHz
MW	510	~	1620 KHz
SW1	2.2	~	7.3 MHz
SW2	9.4	~	26.5 MHz

Intermadiate Frequency

FM	10.7 MHz
AM	455 KHz

Antenna System

LW, MW···· High gain ferrite (10ϕX180mm) bar antenna.
SW1 ····· High gain ferrite (10ϕX130mm) bar antenna.
FM, SW2 ····· Disappearing 1100mm telescopic antenna.

Power Output

Maximum	1200 mW
Undistorted	900 mW

Current (DC) ..... 23 mA (at no signal)
Power Supply····· 6 each 1½ volt standard flashlight batteries "D" cell (UM-1) (Eveready 1050 or Berec U-2) or AC 120/240V, 50-60Hz
Dimensions ····· 305 mm(W), 190 mm(H), 95 mm(D)
Weight ..... 2.8 kg

CHASSIS REMOVAL

1. Remove knob from cabinet front and batteries.
2. Remove the back cabinet fixing screws and open the back cabinet.
3. Remove the protector boad and in open.
4. Remove the chassis mounting screws.
5. Remove the chassis from the cabinet.

Fig 1. AM tuner assembly.

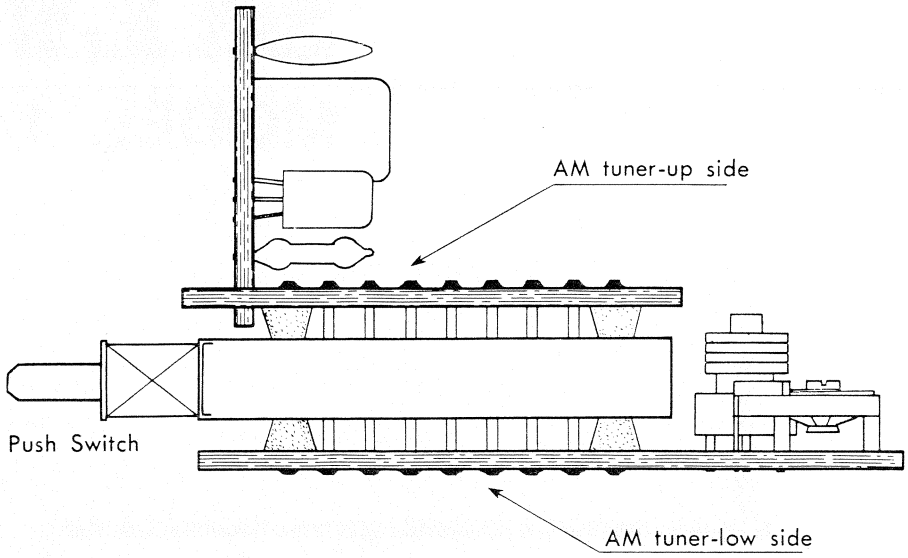
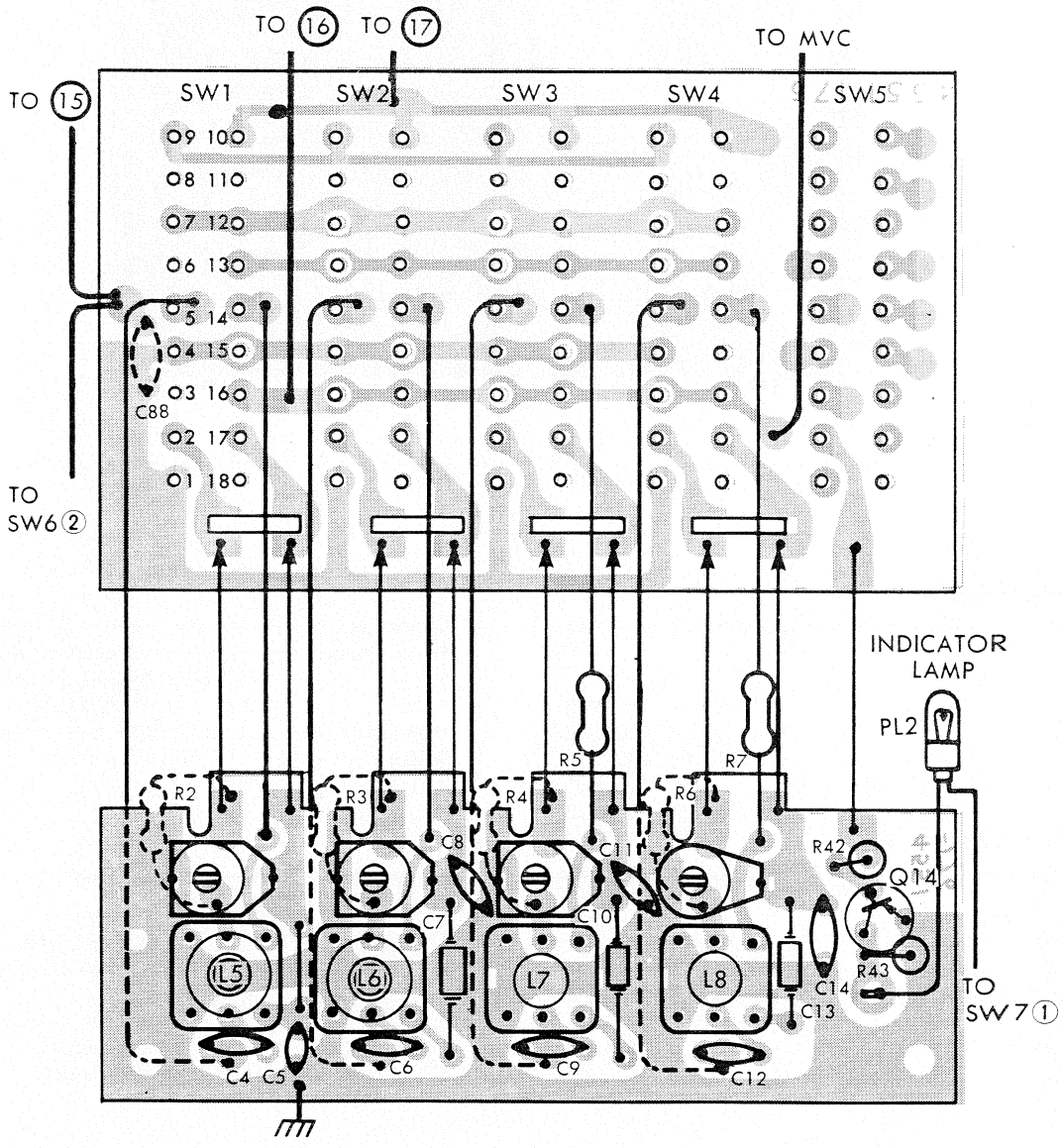


Fig 2. AM tuner-up side.



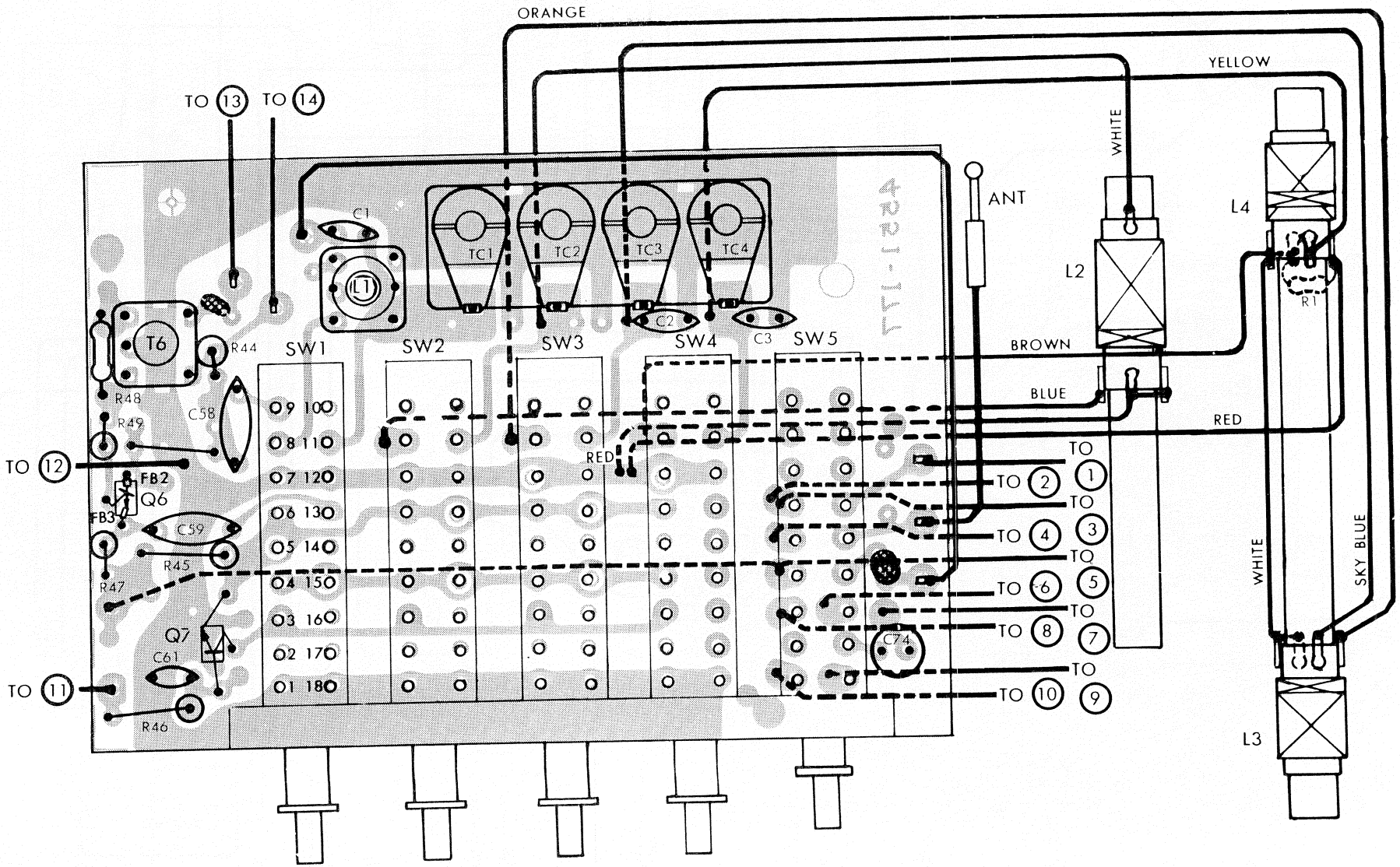


Fig 3. AM tuner-low side.

Fig 4. FM tuner, IF amp and AF amp.

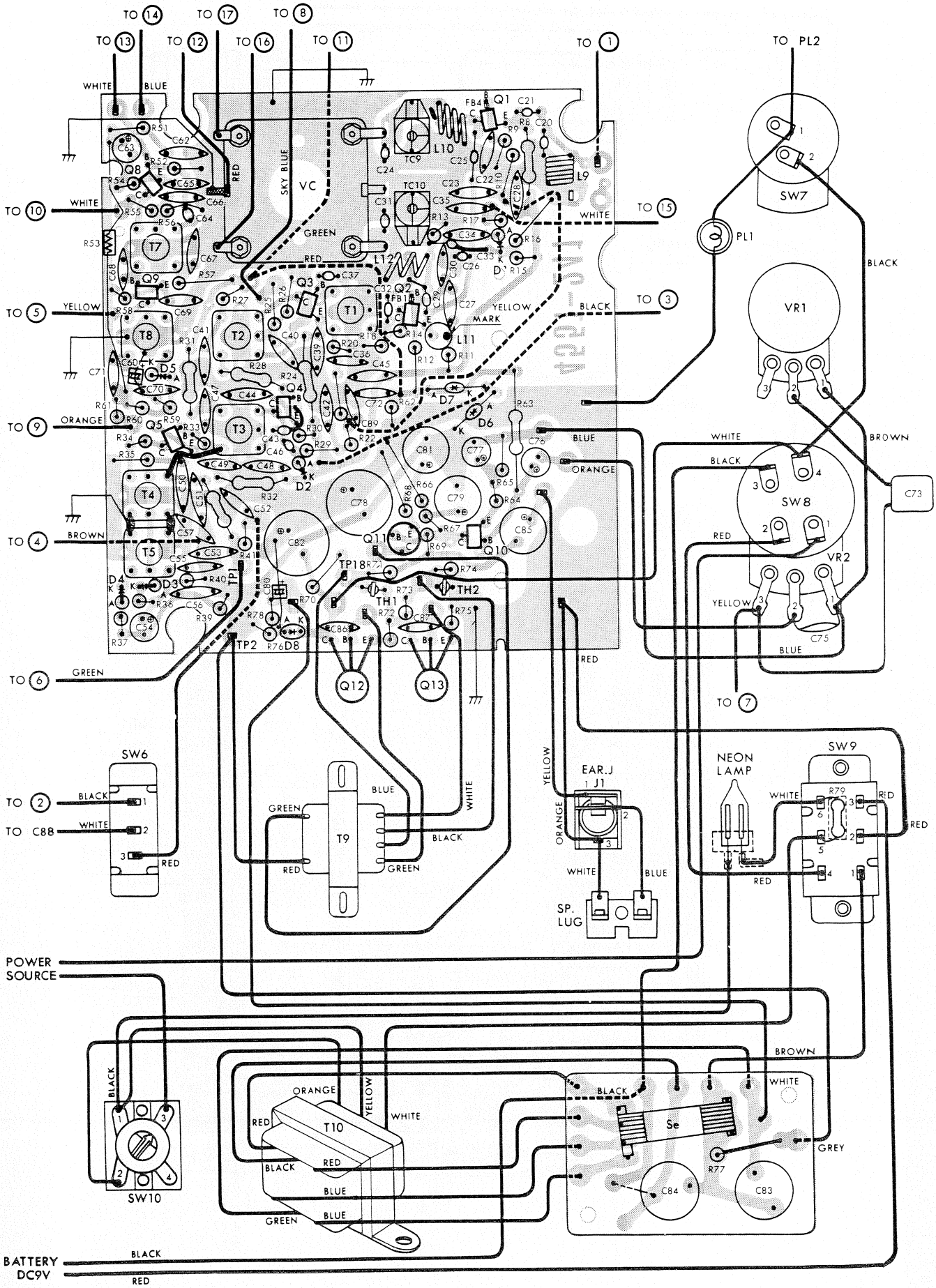
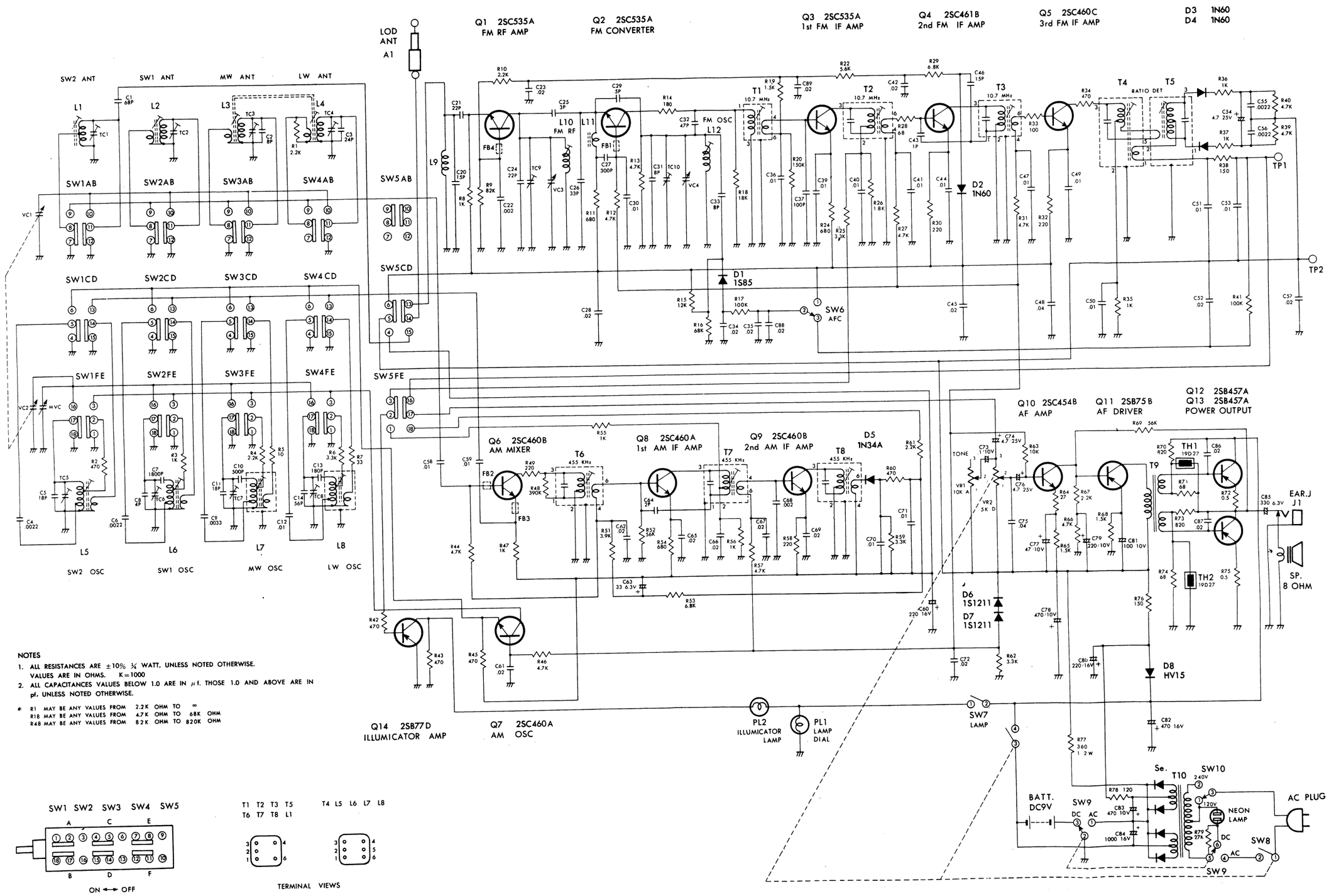


Fig 5. Schematic Diagram.



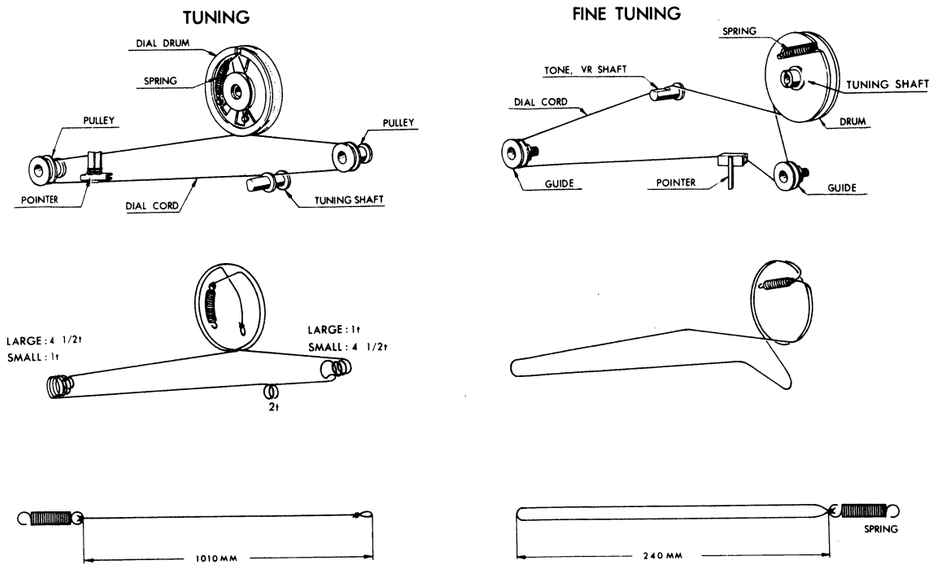
NOTES

1. ALL RESISTANCES ARE ±10% ¼ WATT, UNLESS NOTED OTHERWISE. VALUES ARE IN OHMS. K=1000
2. ALL CAPACITANCES VALUES BELOW 1.0 ARE IN μf. THOSE 1.0 AND ABOVE ARE IN pf. UNLESS NOTED OTHERWISE.

* R1 MAY BE ANY VALUES FROM 2.2K OHM TO ∞
R18 MAY BE ANY VALUES FROM 4.7K OHM TO 68K OHM
R48 MAY BE ANY VALUES FROM 82K OHM TO 820K OHM

TERMINAL VIEWS

Fig 6. Dial Cord Stringing.



ALIGNMENT

INSTRUMENT REQUIRED

1. RF Signal Generator
2. Electronic Voltmeter (E.V.M.)

GENERAL

1. Signal input must be as low as possible to avoid overload and clipping. (Use highest sensitivity of output indicator)
2. Volume control at maximum.
3. Standard modulation is 400 Hz at 30% amplitude.

Step	*Connect Signal Source To -*	*Connect Output Indicator To -*	*Set Signal Generator To -*	*Set Radio Dial To -*	*Adjust -*	*Adjust For -*	*Step*
SET FUNCTION SWITCH TO LW							
1	Loop	E.V.M. across Voice coil	455 KHz	Tuning gang closed	T6 T7 T8 (AM IFT)	Maximum output	1
2			145 KHz	Tuning gang closed	L8 (Osc. Coil)		2
3			415 KHz	Tuning gang open	TC8 (Osc. Trim.)		3
4	Repeat Steps 2 and 3						4
5	Loop	E.V.M. across Voice coil	170 KHz	Tune for signal	L4 (Ant. Coil)	Maximum output	5
6			370 KHz		TC4 (Ant. Trim.)		6
7	Repeat Steps 5 and 6						7
SET FUNCTION SWITCH TO AM							
1	Loop	E.V.M. across voice coil	505 KHz	Tuning gang closed	L7 (Osc. Coil)	Maximum output	1
2			1680 KHz	Tuning gang open	LC7 (Osc. Trim.)		2
3	Repeat Steps 1 and 2						3
4	Loop	E.V.M. across voice coil	600 KHz	Tune for signal	L3 (Ant. Coil)		4
5			1400 KHz		TC3 (Ant. Trim.)		5
6	Repeat Steps 4 and 5						6
SET FUNCTION SWITCH TO SW1							
1	Loop	E.V.M. across voice coil	7.1 MHz	Tuning gang closed	L6 (Osc. Coil)	Maximum output	1
2			7.56 MHz	Tuning gang open	TC6 (Osc. Trim.)		2
3	Repeat Steps 4 and 5						3
4	Loop	E.V.M. across voice coil	2.5 MHz	Tune for signal	L2 (Ant. Coil)	Maximum output	4
5			6.0 MHz		TC2 (Ant. Trim.)		5
6	Repeat Steps 4 and 5						6

Step	*Connect Signal Source To -*	*Connect Output Indicator To -*	*Set Signal Generator To –*	*Set Radio Dial To -*	*Adjust -*	*Adjust For -*	*Step*
SET FUNCTION SWITCH TO SW2							
1	Rod Ant. through 10 pF	E.V.M. across voice coil	9.0 MHz	Tuning gang closed	L5 (Osc. Coil)	Maximum output	1
2			27.5 MHz	Tuning gang open	TC5 (Osc. Trim.)		2
3	Repeat Steps 4 and 5						3
4	Rod Ant. through 10 pF	E.V.M. across voice coil	11 MHz	Tune for signal	L1 (Ant. Coil)	Maximum output	4
5			26 MHz		TC1 (Ant. Trim.)		5
6	Repeat Steps 1 and 2						6
SET FUNCTION SWITCH TO FM							
1	Rod Ant. through 10 pF	E.V.M. across voice coil	10.7 MHz	Tuning gang closed	T1,T2,T3, T4 (FM IFT)(Ratio Det.)	Maximum output	1
2		DC probe to TP1 and TP2	10.7 MHz (Unmod.)		T5 (Ratio Det.)	Zeroreading a positive or negative reading on either side of correct setting	2
3	Repeat Steps 1 and 2						3
4	Rod Ant. through 10 pF	E.V.M. across voice coil	86.5 MHz [87.5 MHz]	Tuning gang closed	L12 (Osc. Coil)	Maximum output	4
5			109 MHz [108 MHz]	Tuning gang open	TC10 (Osc. Trim.)		5
6	Repeat Steps 4 and 5						6
7	Rod Ant. through 10 pF	E.V.M. across voice coil	88 MHz	Tune for signal	L10 (Ant. Coil)	Maximum output	7
8			108 MHz		TC9 (Ant. Trim.)		8
9	Repeat Steps 7 and 8						9

NOTE: [ ] ····· W. Germany

PARTS LIST

Ref. No.	*Parts Number*	*Description*
RESISTORS (All Resistors ¼W ±10% Carbon unless otherwise noted)		
R1	5134-222611	2.2K ohm (2.2K ~∞)
R2	5134-471611	470 ohm
R3	5134-102611	1K ohm
R4	5134-222611	2.2K ohm
R5	5134-100611	10 ohm
R6	5134-332611	3.3K ohm
R7	5134-330611	33 ohm
R8	5134-102611	1K ohm
R9	5154-823611	82K ohm
R10	5154-222611	2.2K ohm
R11	5154-681611	680 ohm
R12	5154-472611	4.7K ohm
R13	5154-222611	2.2K ohm
R14	5154-181611	180 ohm
R15	5154-123611	12K ohm
R16	5154-683611	68K ohm
R17	5154-104611	100K ohm
R18	5134-183611	18K ohm
R19	5154-152611	1.5K ohm
R20	5154-154611	150K ohm
R22	5154-562611	5.6K ohm
R24	5134-681611	680 ohm
R25	5154-332611	3.3K ohm
R26	5154-182611	1.8K ohm
R27	5154-472611	4.7K ohm
R28	5134-680611	68 ohm
R29	5154-682611	6.8K ohm
R30	5154-221611	220 ohm
R31	5134-472611	4.7K ohm
R32	5134-221611	220 ohm

Ref. No.	*Parts Number*	*Description*
R33	5154-101611	100 ohm
R34	5154-471611	470 ohm
R35	5154-102611	1K ohm
R36	5154-102611	1K ohm
R37	5154-102611	1K ohm
R38	5134-151611	150 ohm
R39	5154-472611	4.7K ohm
R40	5154-472611	4.7K ohm
R41	5154-104611	100K ohm
R42	5154-471611	470 ohm
R43	5154-471611	470 ohm
R44	5154-472611	4.7K ohm
R45	5154-471611	470 ohm
R46	5154-472611	4.7K ohm
R47	5154-102611	1K ohm
R48	5134-394611	390 ohm
R49	5154-221611	220 ohm
R51	5154-392611	3.9K ohm
R52	5154-563611	56K ohm
R53	5134-682611	6.8K ohm
R54	5154-681611	680 ohm
R55	5154-102611	1K ohm
R56	5154-102611	1K ohm
R57	5154-472611	4.7K ohm
R58	5154-221611	220 ohm
R59	5154-332611	3.3K ohm
R60	5154-471611	470 ohm
R61	5154-222611	2.2K ohm
R62	5154-332611	3.3K ohm
R63	5134-103611	10K ohm
R64	5154-270611	27 ohm
R65	5154-152611	1.5K ohm

Ref. No.	Parts Number	Description
R66	5154-472611	4.7K ohm
R67	5154-222611	2.2K ohm
R68	5154-152611	1.5K ohm
R69	5154-563611	56K ohm
R70	5154-821611	820 ohm
R71	5154-680611	68 ohm
R72	5154-OR5511	0.5 ohm
R73	5154-821611	820 ohm
R74	5154-680611	68 ohm
R75	5154-OR5511	0.5 ohm
R76	5154-151611	150 ohm
R77	5135-361612	360 ohm ½W Solid
R78	5154-121611	120 ohm
R79	5154-273611	27K ohm
VR1	5114-103055	Tone Control (10K ohm)
VR2	5116-5020121	Volume Control (5K ohm) with SW8

CAPACITOR

C1	5361-680092	68 PF, ±10% 50V, Ceramic
C2	5361-080092	8 PF, ±0.5PF " "
C3	5361-240092	24 PF, ±10% " "
C4	5361-222093	0.0022 MF, +80% -20%, 25V, "
C5	5361-180092	18 PF, ±10% 50V, "
C6	5362-222093	0.0022 MF, +80% -20%, 25V, "
C7	5355-182561	1800 PF, ±5% 50V, Stylor
C8	5361-040092	4 PF, ±10% 50V, Ceramic
C9	5362-332093	0.0033 MF, +80% -20%, 25V, "
C10	5355-501561	500 PF, ±5% 50V, Stylor
C11	5361-180092	18 PF, ±10% 50V, Ceramic
C12	5362-103093	0.01 MF, ±20% " "
C13	5355-181561	180 PF, ±5% 50V, Stylor
C14	5361-560092	56 PF, ±10% 50V, Ceramic
C20	5361-150092	15 PF, ±10% 50V, Stylor
C21	5361-220092	22 PF, ±10% 50V, Ceramic
C22	5361-202093	0.002 MF, +80% -20%, 25V, "
C23	5362-203093	0.02 MF, ±20%, 50V, "
C24	5361-220092	22 PF, ±10%, " "
C25	5361-030092	3 PF, ±0.5PF, " "
C26	5361-330092	33 PF, ±10%, " "
C27	5361-301092	300 PF, " " "
C28	5361-203092	0.02 MF, " " "
C29	5361-050092	5 PF, ±0.5PF " "
C30	5361-103093	0.01 MF, +80% -20%, 25V, "
C31	5361-150092	15 PF, ±10%, 50V, "
C32	5361-470092	47 PF, " " "
C33	5361-080092	8 PF, ±0.5PF, 50V, "
C34	5361-203093	0.02 MF, +80% -20%, 25V, "
C35	5361-203093	0.02 MF, " " " "
C36	5361-103093	0.01 MF, " " " "
C37	5361-101093	100 PF, " " " "
C39	5361-103093	0.01 MF, " " " "
C40	5361-103093	0.01 MF, " " " "
C41	5361-103093	0.01 MF, " " " "
C42	5361-203093	0.02 MF, " " " "
C43	5361-010092	1 PF, ±0.5PF, 50V, "
C44	5362-103093	0.01 MF, ±20%, " "
C45	5362-203093	0.02 MF, " " "
C46	5361-150092	15 PF, ±10%, " "
C47	5361-103093	0.01 MF, +80% -20%, 25V, "
C48	5361-403093	0.04 MF, " " " "
C49	5361-103093	0.01 MF, " " " "
C50	5361-103093	0.01 MF, " " " "
C51	5362-103093	0.01 MF, ±20%, 50V, "
C52	5361-203093	0.02 MF, +80% -20%, 25V, "
C53	5362-103093	0.01 MF, ±20%, 50V, "
C54	5345-4750214	4.7MF,+100%-10%,25V,Electrolytic
C55	5362-222093	0.0022 MF, ±20% 50V, Ceramic
C56	5362-222093	0.0022 MF, " " "
C57	5362-203093	0.02 MF, " " "
C58	5362-103093	0.01 MF, " " "
C59	5362-103093	0.01 MF, " " "
C60	5345-2270213	220MF,+100%-10%,16V,Electrolytic
C61	5361-203093	0.02MF,+80%-20%,50V, Ceramic
C62	5361-203093	0.02MF, " " 25V, "
C63	5345-3360211	33 MF,+100%-10%,6.3V,Electrolytic
C64	5361-020092	2 PF, ±0.5 PF, 50V, Ceramic
C65	5361-203093	0.02MF,+80%-20%, " "
C66	5361-203093	0.02MF, " " 25V, "
C67	5361-203093	0.02MF, " " " "
C68	5361-202093	0.002MF, " " " "
C69	5361-203093	0.02MF, " " " "
C70	5362-103093	0.01MF, ±20% 50V, "
C71	5362-103093	0.01MF, " " "
C72	5361-203093	0.02MF,+80%-20%,25V, "
C73	5346-104092	0.1 MF,+40%-20%,10V,Al. Solid
C74	5345-4750214	4.7MF,+100%-10%,25V,Electrolytic
C75	5361-403093	0.04MF,+80%-20%, 25V, Ceramic
C76	5345-4750214	4.7 MF,+100%-20%,25V,Electrolytic
C77	5345-4760212	47 MF, " " 10V, "
C78	5345-4770212	470MF, " " " "
C79	5345-2270212	220MF, " " " "
C80	5345-2270213	220MF, " " 16V, "
C81	5345-1070212	100MF, " " 10V, "
C82	5345-4770213	470MF, " " 16V, "
C83	5345-4770213	470MF, " " " "
C84	5345-1080213	1000MF, " " " "
C85	5345-3370211	330MF, " " 6.3V, "
C86	5361-203093	0.02MF,+80%-20%,25V, "
C87	5361-203093	0.02MF, " " " "
C88	5361-203093	0.02MF, " " " "
C89	5361-203093	0.02MF, " " " "
VC1~4	5324-0112	Variable Tuning Gang
TC1~4	5374-31	Trimmer
TC5,TC6		
TC7,TC8	5371-33	Trimmer
TC9,TC10		

COILS AND TRANSFORMERS

L1	5943-0077	Coils SW2 Ant.
L2	5914-13	" SW1 Bar-Ant.
L3,4	5913-20	" LW, MW Bar-Ant.
L5	5923-01012	" SW2 Osc.
L6	5923-00114	" SW1 Osc.
L7	5923-0057	" MW Osc.
L8	5923-0047	" LW Osc.
L9	5991-0025	" FM Ant.
L10	5991-0265	" FM RF
L11	5991-0056	" FM IF Trap
L12	5991-0235	" FM Osc.
T1	5563-0123	Transformer 1st FM 1F
T2	5563-0173	" 2nd FM 1F
T3	5563-0173	" 3rd FM 1F
T4	5573-0065D	" Ratio Det.
T5	5573-0045E	" Ratio Det.
T6	5553-0291	" 1st AM 1F
T7	5553-0061	" 2nd AM 1F
T8	5553-0301	" 3rd AM 1F
T9	5581-00121	" Input
T10	5584-00116	" Power
FB1~4	5597-2	Ferrite Bead

Ref. No.	*Parts Number*	*Description*	
SEMICONDUCTORS			
Q1	5613-535(A)	Transistor	FM RF Amp.
Q2	5613-535(A)	〃	FM Converter
Q3	5613-535(A)	〃	1st FM 1F Amp.
Q4	5613-461(B)	〃	2nd FM 1F Amp.
Q5	5613-460(C)	〃	3rd FM 1F Amp.
Q6	5613-460(B)	〃	AM Mix.
Q7	5613-460(A)	〃	AM Osc.
Q8	5613-460(A)	〃	1st AM 1F Amp.
Q9	5613-460(B)	〃	2nd AM 1F Amp.
Q10	5613-454(B)	〃	AF Amp.
Q11	5612-75(B)	〃	AF Driver
Q12	5612-457A(C)	〃	Power Output
Q13	5612-457A(C)	〃	〃
Q14	5612-77(D)	〃	Illumicator Amp.
D1	5633-1S85	Diode	FM AFC
D2	5631-1N60	〃	FM AGC
D3	5631-1N60P	〃	Ratio Det.
D4	5631-1N60P	〃	Ratio Det.
D5	5631-1N34A	〃	AM Det.
D6	5641-1S1211	Varistor	Bias Conp.
D7	5641-1S1211	〃	Bias Conp.
D8	5641-HV15	〃	DC Swith
Se	5682-5	Selenium Rectifier	
TH1	5191-19D27	Thermistor	
TH2	5191-19D27	〃	
MISCELLANEOUS			
	1311-02164 (Ass'y)	Cabinet Assembly	
	1392-090025	Antenna, Telescopic Rod	
	1352-01204	Knob, Vol. Tone Illumicator Fine	
	1352-01209	Knob, Tuning	
	1352-01207	Push Switch	
	1321-221	Battery case	
	5811-C120002	Speaker, 12cm PM. 8 ohm	
	2634-53	Pointer (tuning)	
	2611-106	Tuning Drum	
	2631-0180	Pointer (fine)	
	2611-0124	Fine Tuning Drum	
	2612-2621	Double Pulley	
	2612-5223	Pulley	
	5731-090123	Dial Lamp (9V-65mA)	
	5731-060143	Illumicator Lamp (6V-30mA)	
SW1～5	4431-053011	Band Swith	
SW6	4464-013	AFC Swith	
SW7	4411-01021	Lamp Swith	
SW9	4421-02236	Swith, AC/DC	
SW10	4411-102014	Swith, 120V/240V	

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